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Gas Pressure in Sealed Electrochemical Cells Measured Externally

A method has been devised for measuring the gas pressure inside sealed secondary electrochemical cells without breaking the seal. This method applies to cells of rectangular cross section which are normally supported by a clamp tightened against the broad metal faces of the cells. The method is based on the experimentally observed fact that the force (in excess of the initial clamping force) exerted by the cell faces on the clamp is a function of the gas pressure inside the cell.

The external force is measured by means of a piezo-resistive transducer. The electrochemical cell to be tested is first clamped against the transducer with a normal clamping force, and the electrical output of the transducer is noted. At a later time, when it is desired to measure the cell's internal pressure, the transducer output is again noted. The internal pressure is readily determined from these readings and the force-pressure calibration curve obtained in a previous experiment on a calibrating cell. The latter cell, drawn

from the same production lot as the test cell, is fitted with a pressure transducer and a tube which can be connected to a gas pressure source. In all other respects, the calibrating cell must be essentially identical to the cells to be tested.

Note:

Inquiries concerning this invention may be directed to:

Technology Utilization Officer
Goddard Space Flight Center
Greenbelt, Maryland 20771
Reference: B67-10551

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

Source: Joseph M. Sherfey
(GSC-10004)

Category 03